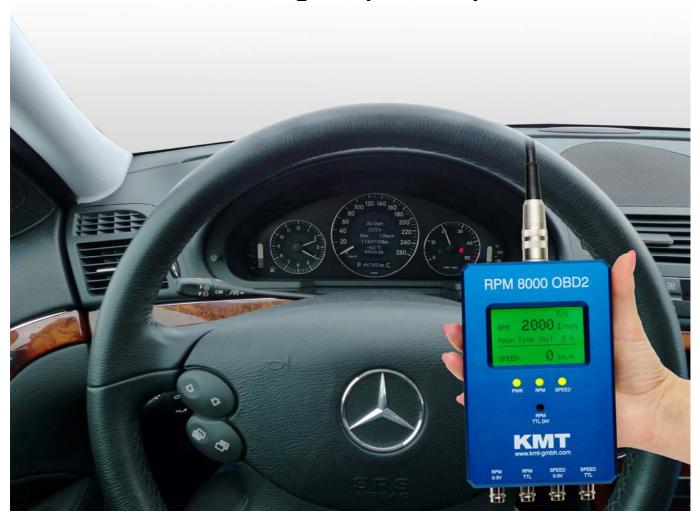


## Operating instructions

## **RPM8000-OBD2**

RPM and SPEED measurement in cars via CAN "On-Board Diagnostics" interface with analog and pulse outputs



- No sensor installation required
- Direct reading of RPM and SPEED
- 16-8-4-2 or 1 pulse / engine revolutions
- 16 pulse / km/h

- Analogue and pulse output
- Display of RPM and SPEED
- Max. 10000 RPM and 250 km/h
- Universal 8-30VDC supply

RPM8000-OBD2 offers a discerning solution for automotive RPM measurement without an additional sensor. The information will read direct from the CAN-OBD2- interface (ISO 15765 CAN, 11/29Bit ID, 250/500 kBaud) . The instrument is simply connected to the standard OBD2 connector and the RPM or SPEED is shown directly on the LCD display. You even have the choice to output the data as an analog voltage (0-5V) or as a digital pulse sequence (TTL).

**Technical details:** 

Input source CAN-OBD2 Interface (ISO 15765 CAN BUS) CAN 11 ident 250 KB, CAN 11 ident 500 KB

CAN 29 ident 250 KB, CAN 29 ident 500 KB

Update rate 20Hz or better

Supply voltage via CAN-OBD2 connector or 8-30 VDC

Current consumption 200 mA at 12V

RPM Analog output: 0-5V, 0.5 V per 1000 RPM, max. 10000 RPM

max. delay 50 ms (car timeout), min. delay 4ms,

typ. delay 10 ms

accuracy 0.5 % (tested with calibrator) output impedance 2 ohm 10 mA

RPM Digital output: 16Hz (1:1) per engine revolutions max. 10000 RPM

> RPM frequency divider 1:1, 1:2, 1:4, 1:8 or 1:16 DIV 1:1 = 2666.66 Hz at 10000 RPM = 16Hz/rev. DIV 1:2 = 1333.33 Hz at 10000 RPM = 8 Hz/rev. DIV 1:4 = 666,66 Hz at 10000 RPM = 4 Hz/rev. DIV 1:8 = 333,33 Hz at 10000 RPM = 2 Hz/rev. DIV 1:16 = 166,66 Hz at 10000 RPM = 1 Hz/rev.

TTL level 0 and 5 V

output impedance 130 ohm

accuracy 0.5 % (tested with calibrator)

max. delay 50 ms (car timeout), min. delay 4ms,

typ. delay 10 ms

SPEED Analog output: 0-5V, 0.02 V per km/h, max. 250Hz

max. delay 50 ms (car timeout), min. delay 4ms,

tvp. delay 10 ms

accuracy 0.5 % (tested with calibrator) output impedance 2 ohm 10 mA

SPEED Digital output: 16Hz/km/h max. 250km/h = 4000Hz

TTL level 0 and 5 V

output impedance 130 ohm

accuracy 0.5 % (tested with calibrator)

max. delay 50 ms (car timeout), min. delay 3ms,

typ. delay 10 ms iitter 0.1 - 1 %

~ 2 seconds

Synchronization time

Displays: Divider, numeric and graphic graphic display:

RPM and SPEED

LED green Power ON

RPM supported over CAN YES / NO (green/red) LED green/red

LED green/red SPEED supported over CAN

YES / NO (green/red)

frequency divider for RPM 1:1, 1:2, 1:4, 1:8 or 1:16 Rotary switch:

Rotary switch can switch-OFF the SPEED function

(only RPM measurement possible)

The RPM measuring range of the analog output is 0.5 Volt per 1000 RPM. The standard TTL frequency output of 16Hz per engine revolution can scaled with a frequency divider of 1:1, 1:2, 1:4, 1:8 or

The SPEED measuring range of the analog output is 0.020V per km/h (0-5V = 0-250km/h) The TTL frequency output is 16Hz/km/h max. 250km/h.

Connectors: BNC OUT for analog RPM and SPEED

BNC OUT for TTL frequency RPM and SPEED

OBD2 Plug for INPUT with 3m cable

Pin connection: 4 **GND** Car

**GND** Signal CAN-High 6

14 CAN-Low

16 Battery (+)



Dimensions: 150 x 100 x 30mm

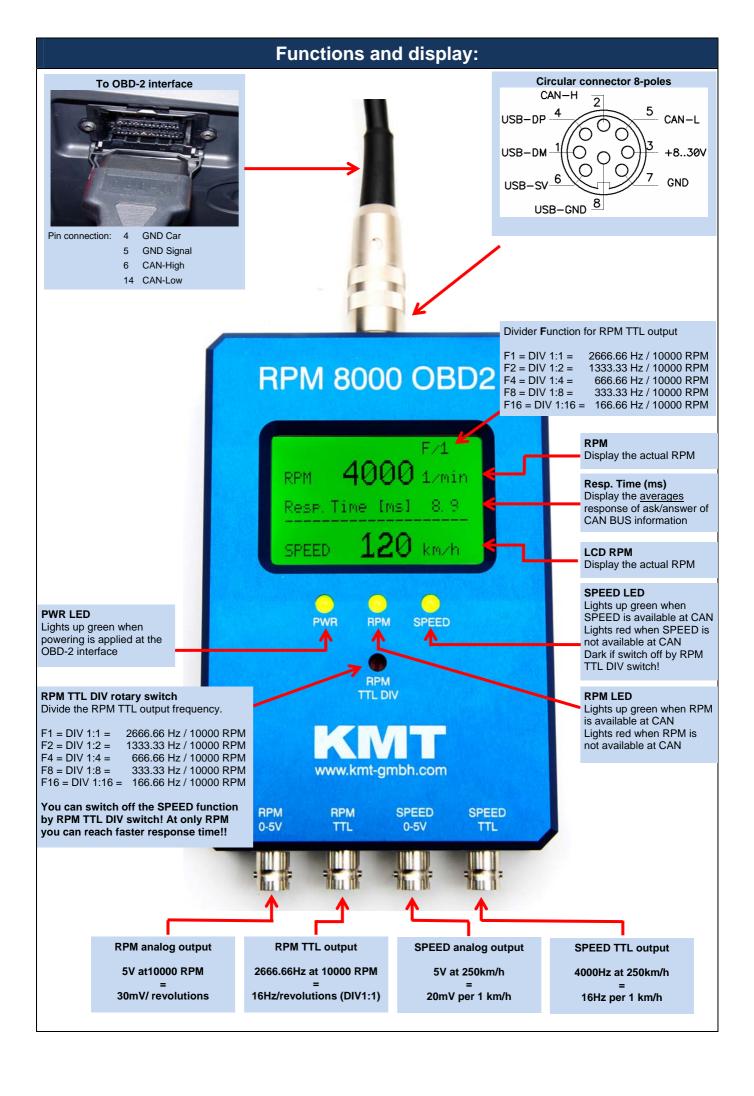
Weight: 0.5kg without connection cable

Material: anodized aluminum Operating temperature: -20°C to +70°C Storage temperature: -30 to +80°C Humidity: 20 - 80% Vibrations: 5q

Shock: in all directions 100 g



RPM8000OBD2 - in transport case



## First steps

1) Connect the RPM8000-OBD2 with the OBD2 interface in the car which is normal positioned in the area below the steering wheel.







- Avoid any obstructions trough the RPM8000-OBD2 connection cable in your driver's cabin!
- \* Make sure thant you don't get any driving affects through the connection cable or RPM8000-OBD2 device!
- \* The RPM8000-OBD2 is only for <u>authorized test people</u> e.g. from R&D departments.
  \* Not suitable for <u>general</u> use on puplic streets!
- 2) Switch on your car electronic by the car key. Now the RPM8000-OBD2 will start to search the OBD2. It will take about 2-3 sec. When the RPM8000OBD2 detects **ISO 15765 CAN** than the RPM- and SPEED-LED will lights up green. If the RPM8000-OBD2 search routine will take more than 20 seconds, the OBD2 protocol is not compatible.



Supported protocol:

ISO 15765 CAN: CAN 11 ident 250 KB, CAN 11 ident 500 KB CAN 29 ident 250 KB, CAN 29 ident 500 KB

## First steps

3) Now you can start your car engine and follow up with the measurement.



4) With the **RPM TTL DIV rotary switch** one can divide the RPM TTL output frequency and switch Off the SPEED function to reach a faster response time. When switching Off the RPM measurement the SPEED LED is dark!

